

REMARKS

In the Office Action mailed November 14, 2007 (hereinafter, "Office Action"), claims 1-4, 8-11 and 15-18 stand rejected under 35 U.S.C. § 103. New claim 19-20 have been added.

Applicants respectfully respond to the Office Action.

I. Claims 1-4 and 8-11 Rejected Under 35 U.S.C. § 103

Claims 1-4 and 8-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0028691 to Moulsey et al. (hereinafter, "Moulsey") in view of U.S. Patent No. 5,835,023 to Ito et al. (hereinafter, "Ito"). Applicants respectfully traverse.

The factual inquiries that are relevant in the determination of obviousness are determining the scope and contents of the prior art, ascertaining the differences between the prior art and the claims in issue, resolving the level of ordinary skill in the art, and evaluating evidence of secondary consideration. KSR Int'l Co. v. Teleflex Inc., 550 U.S. ___, 2007 U.S. LEXIS 4745, at **4-5 (2007) (citing Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17-18 (1966)). To establish a *prima facie* case of obviousness, the prior art references "must teach or suggest all the claim limitations." M.P.E.P. § 2142. Moreover, the analysis in support of an obviousness rejection "should be made explicit." KSR, 2007 U.S. LEXIS 4745, at **37. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Id. (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Applicants respectfully submit that the claims at issue are patentably distinct from the cited references. The cited references do not teach or suggest all of the subject matter in these claims.

Claim 1 recites "wherein the second number is less than the first number, wherein the second number is selected to satisfy the designated packet error rate." Moulsey, alone or in combination with Ito, does not teach or suggest this subject matter.

The Office Action admits that "Moulsey is silent on wherein the second number is less than the first number, wherein the second number is selected to satisfy the designated packet

error rate.” (Office Action, page 3.) The addition of Ito does not overcome the deficiencies of Moulsey.

Instead Ito states:

A mobile radio communication system according to this invention is characterized in that, in a mobile radio communication system which has a plurality of receivers to each of which an address has been assigned, and a base station which transmits a paging signal n times (where n is a predetermined integer equal to or greater than 2) to a receiver which is to be called, the paging signal containing address information corresponding to that receiver.

Ito, col. 2, lines 39-47.

Stating that “a base station . . . transmits a paging signal n times” does not teach or suggest “wherein the second number is selected to satisfy the designated packet error rate.” If the Office Action is asserting that “ n ” is “the second number”, Ito does not teach or suggest that “ n ” is selected “to satisfy the designated packet error rate.” Ito merely states that “ n is a predetermined integer equal to or greater than 2.”

In addition, Ito states:

The unit of transmission from the base station is a frame containing one or more paging signals. Identical paging signals are transmitted repeatedly by means of n frames, and the position of identical paging signals within the frames can be determined by means of a prearranged rule.

Ito, col. 2, lines 61-65.

The teaching of “ n frames” does not teach or suggest that the “ n frames” were “selected to satisfy the designated packet error rate.” Instead, the “ n frames” taught in Ito are selected to transmit “[i]dentical paging signals.”

Further, Ito states:

Each frame will then be composed of n fixed-length subframes, and one or more new paging signals are inserted into the first subframe of a frame, while paging signals which are being transmitted for the m^{th} time are inserted into the m^{th} subframe of the frame. Given this format, the position of the subframe which contains the same paging signals will change regularly with each frame, and its timing can be predicted at the receiver.

Ito, col. 3, lines 2-10.

Regarding this cited-portion of Ito above, the Office Action appears to assert that because Ito “determine[s] the n times and m times”, Ito teaches “wherein the second number is less than the first number, wherein the second number is selected to satisfy the designated packet error rate.” (See Office Action, page 3.) In particular, it appears that the Office Action is asserting that the recitation of “n fixed-length subframes” and “the mth subframe of the frame” teaches “wherein the second number is less than the first number, wherein the second number is selected to satisfy the designated packet error rate.” Applicants respectfully disagree with this assertion.

Ito does not teach or suggest that either the “n fixed-length subframes” or “the mth subframe of the frame” teaches “wherein the second number is selected to satisfy the designated packet error rate.” In fact, Ito does not explain how “n fixed-length subframes” is decided. Regarding “the mth subframe of the frame”, Ito teaches that this is decided “while paging signals which are being transmitted for the mth time.” Merely stating that paging signals are transmitted for the “mth time” does not teach or suggest that the “mth time” was “selected to satisfy the designated packet error rate.”

In view of the foregoing, Applicants respectfully submit that claim 1 is patentably distinct from the cited references. Accordingly, Applicants respectfully request that the rejection of claim 1 be withdrawn.

Claims 2-4 depend either directly or indirectly from claim 1. Accordingly, Applicants respectfully request that the rejection of claims 2-4 be withdrawn.

Claim 8 includes subject matter similar to the subject matter of claim 1. As such, Applicants submit that claim 8 is patentably distinct from the cited references for at least the same reasons as those presented above in connection with claim 1. Accordingly, Applicants respectfully request that the rejection of claim 8 be withdrawn.

Claims 9-11 depend either directly or indirectly from claim 8. Accordingly, Applicants respectfully request that the rejection of claims 9-11 be withdrawn.

II. Claims 15-18 Rejected Under 35 U.S.C. § 103

Claims 15-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Moulsey in view of U.S. Patent Application Publication No. 2002/0150040 to Tong et al.

(hereinafter, “Tong”). Applicants respectfully traverse. The standard to establish a *prima facie* case of obviousness is provided above. (See M.P.E.P. § 2142.)

Claim 15 recites “wherein the packet processing unit terminates processing of the subpacket on receipt of a negative acknowledgement message after the portion of the subpackets is transmitted.” Moulsey, alone or in combination with Tong, does not teach or suggest this subject matter.

The Office Action admits that “Moulsey is silent on . . . wherein the packet processing unit terminates processing of the subpacket on receipt of a negative acknowledgement message after the portion of the subpackets is transmitted.” (Office Action page 4.) The addition of Tong does not overcome the deficiencies of Moulsey.

Instead Tong states:

The present invention provides an automated retransmission request-based system wherein packets are continuously transmitted from a transmitter to a receiver. During reception, the receiver will send either an acknowledgement (ACK) or a negative-acknowledgement (NAK) to the transmitter, depending on whether or not the corresponding packet was properly received. In response to the NAKs, the transmitter will identify the packet that was not properly received, which is referred to as the packet for retransmission. The transmitter will divide the packet for retransmission into multiple subpackets, and puncture each subpacket into a packet in the sequence of packets being transmitted to the receiver. The receiver will recover the subpackets from the punctured packets and will recreate the packet for retransmission from the recovered subpackets.

Tong, page 1, paragraph [0008].

In the above-cited passage of Tong, “the receiver will send either an acknowledgement (ACK) or a negative-acknowledgement (NAK) to the transmitter.” (*Id.*) If an NAK is received “the transmitter will identify the packet that was not properly received . . . divide the packet for retransmission into multiple subpackets, and puncture each subpacket into a packet.” (*Id.*) As such, Tong clearly teaches that processing of packets is implemented upon receipt of an NAK. Accordingly, Tong does not teach or suggest that “the packet processing unit terminates processing of the subpacket on receipt of a negative acknowledgement message after the portion of the subpackets is transmitted.” (Emphasis added.) As shown above, Tong teaches the opposite (*i.e.*, packet processing is not terminated upon receipt of the NAK).

In addition, Tong states:

In general, the present invention is triggered to retransmit a packet upon receiving a negative acknowledgment (NAK) from the receiver indicating that the packet was corrupted and not properly received. For retransmission, the packet for retransmission (corrupted packet) is divided into a number of segments, referred to as subpackets. Each subpacket is then injected into a subsequent packet, and transmitted to the receiver . . . If a NAK is received, the packet associated with the NAK is broken into subpackets and injected into subsequent packets for transmission.

Tong, page 2, paragraph [0024].

As similarly provided above, Tong clearly teaches that “upon receiving a negative acknowledgement (NAK)” processing of packets and subpackets continues. For example, upon receipt of a NAK “the packet for retransmission . . . is divided into a number of . . . subpackets. Each subpacket is then injected into a subsequent packet.” (*Id.*) Injecting each “subpacket” into a subsequent packet upon receipt of a NAK does not teach or suggest “the packet processing unit terminates processing of the subpacket on receipt of a negative acknowledgement message after the portion of the subpackets is transmitted.”

In view of the foregoing, Applicants respectfully submit that claim 15 is patentably distinct from the cited references. Accordingly, Applicants respectfully request that the rejection of claim 15 be withdrawn.

Claim 16 recites “transmitting a second negative acknowledgement message for the last installment of the first subpacket, the second negative acknowledgement transmitted at a second time slot, wherein the second time slot is designated for the first subpacket of the next packet.” Moulsey, alone or in combination with Tong, does not teach or suggest this subject matter.

The Office Action admits that “Moulsey is silent on . . . transmitting a second negative acknowledgement message for the last installment of the first subpacket, the second negative acknowledgement transmitted at a second time slot, wherein the second time slot is designated for the first subpacket of the next packet.” (Office Action, pages 5-6.) The addition of Tong does not overcome the deficiencies of Moulsey.

Tong states:

The retransmission acknowledgement flow 8 may be used to provide an ACK or NAK based on whether or not the retransmitted packet or subpackets were properly recovered from the punctured packets.

Tong, page 2, paragraph [0027].

Simply stating that a “NAK” may be used to indicate “whether or not the . . . subpackets were properly recovered” does not teach or suggest that the NAK is “transmitted at a second time slot, [and] wherein the second time slot is designated for the first subpacket of the next packet.” Instead, Tong merely states the ACK and NAK “may be used to simply indicate recovery and reception of the retransmitted packet or subpacket.” (*Id.*) Tong does not teach how or when the NAK is transmitted. In other words, Tong does not teach or suggest that the NAK is “transmitted at a second time slot, [and] wherein the second time slot is designated for the first subpacket of the next packet.”

In view of the foregoing, Applicants respectfully submit that claim 16 is patentably distinct from the cited references. Accordingly, Applicants respectfully request that the rejection of claim 16 be withdrawn.

Claim 17 depends directly from claim 16. Accordingly, Applicants respectfully request that the rejection of claim 17 be withdrawn.

Claim 18 includes subject matter similar to the subject matter of claim 16. As such, Applicants submit that claim 18 is patentably distinct from the cited references for at least the same reasons as those presented above in connection with claim 16. Accordingly, Applicants respectfully request that the rejection of claim 18 be withdrawn.

III. Claims 5-7 and 12-14 Objected

The Office Action objected to claims 5-7 and 12-14 as being dependent upon a rejected base claim. Claims 5-7 and 12-14 have not been rewritten in independent form at this time.

Claims 5-7 depend directly from claim 1. Accordingly, Applicants respectfully request that the objection of claims 5-7 be withdrawn.

Claims 12-14 depend directly from claim 8. Accordingly, Applicants respectfully request that the objection of claims 12-14 be withdrawn.

IV. New Claims 19-20

Claims 19-20 has been added. Applicants submit that claims 19-20 are fully supported by Applicants’ specification. Claim 19 includes subject matter similar to the subject matter described hereinabove in relation to claim 1. Claim 20 includes subject matter similar to the

subject matter described hereinabove in relation to claim 16. As such, Applicants submit that claims 19-20 are patentable for at least the same reasons as those previously described.

REQUEST FOR ALLOWANCE

In view of the foregoing, Applicants submit that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Respectfully submitted,

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